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## Response to Esteller et al.

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In this issue of the *European Archives of Oto-Rhino-Laryngology*, Esteller et al. have conducted a prospective study on 654 ICU patients to determine what prognostic factors influence the risk of laryngotracheal (LT) sequelae after intubation and/or tracheotomy. In their multivariate analysis, the duration of intubation and length of stay in the ICU (merely reflecting a poor medical condition) stand as the most reliable predictive factors of late LT sequelae. Their recommendation is thus to perform an early tracheotomy (during the first 7 days of intubation) in high risk groups, defined as non-neurological and non-surgical male patients in poor general condition and suffering from severe early injuries. The second recommendation is to avoid tracheotomy after prolonged intubation, a practice known to worsen acute or subacute lesions of intubation.

Although their recommendations are pertinent, a fair number of ICU patients fall into the category of prolonged intubations (typically more than 10–15 days) needing further ventilating support. At that stage, tracheotomy is often performed to improve nursing and communication with the patient, thus potentially facilitating the development of cicatricial stenosis of the larynx.

In such a condition, a direct laryngoscopy, performed by an otolaryngologist, should always precisely document the site and severity of endolaryngeal lesions of intubation before performing a tracheotomy. Ulcerations and granulation tissue should not be left without proper treatment to avoid the development of scarring

and stenosis. The treatment consists of removing exophytic granulation tissue with a biopsy forceps in suspension microlaryngoscopy, ensuring haemostasis with adrenaline and topically applying a solution of mitomycin-C at a concentration of 2 mg/ml for 2 min. Mitomycin should not be applied on denuded cartilage surfaces as it may delay regrowth of the epithelium. If, despite this treatment, endolaryngeal lesions seem to evolve into a stenosis, a laryngeal mold should be inserted at that stage. In the medical literature, very long (typically more than 1 month) periods of endotracheal (ET) intubation were reported without stenotic LT sequelae. Most probably, the ET-tube acted as a stent in these cases, showing that an unstented larynx with subacute lesions of intubation is at high risk of developing posterior glottic stenosis or subglottic stenosis.

In summary, anticipating that an ICU patient will most probably need an ET intubation for more than a week warrants an immediate tracheotomy. This decision, however, is often difficult and currently not taken in most ICU centers. Deciding to perform a tracheotomy after a period of 10 to 15 days or more in ICU patients that cannot be weaned from the ventilator is not uncommon. The strict recommendation here is to scope the larynx of the patient, document the site and severity of subacute lesions of intubation and actively treat them if a tracheotomy is decided upon to improve nursing and communication. This will contribute to the diminishment of the late cicatricial sequelae of ET intubation that are sometimes extremely difficult to treat.

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